

DOCKETED

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TOTAL CHARGE MANAGEMENT (TCM) EPIC PROJECT

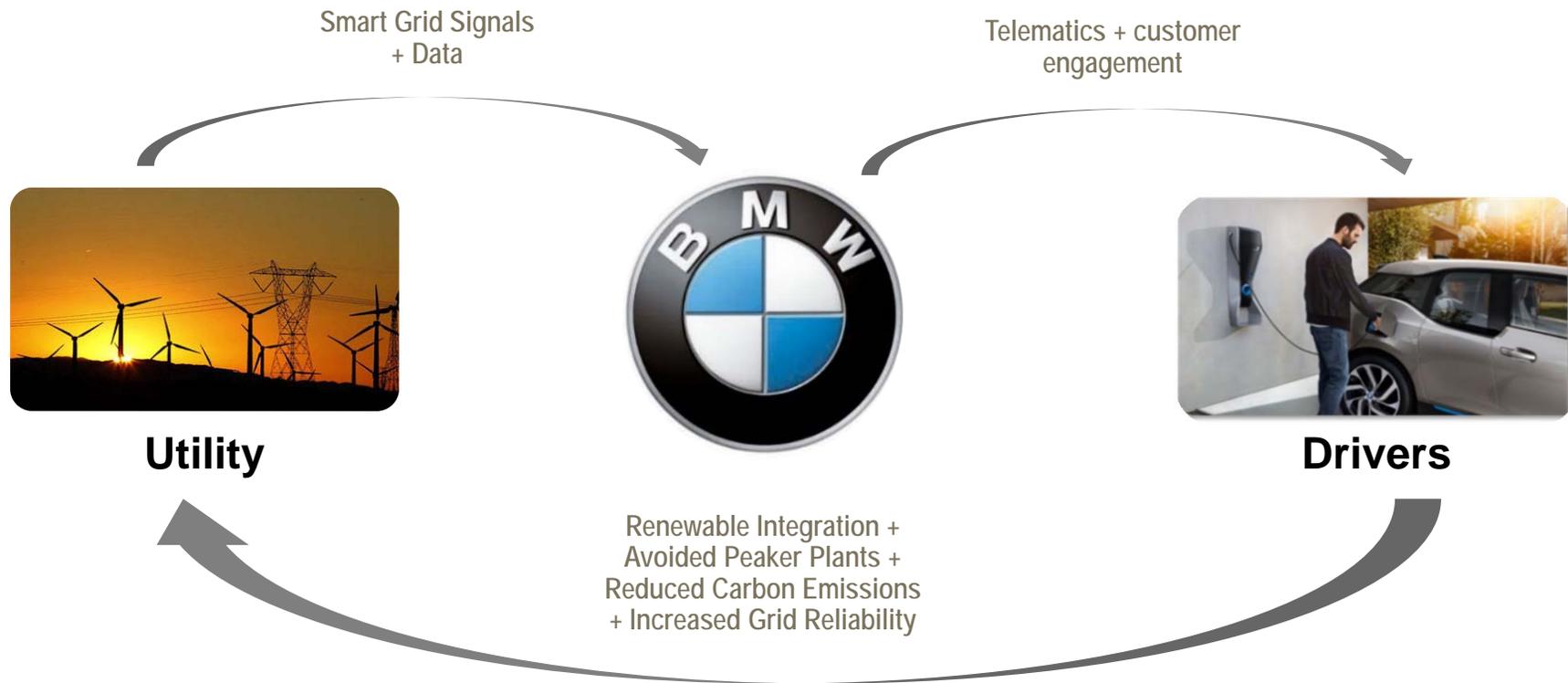
BMW SMART CHARGING PILOT



Adam Langton | EG-8-US | March 27, 2017



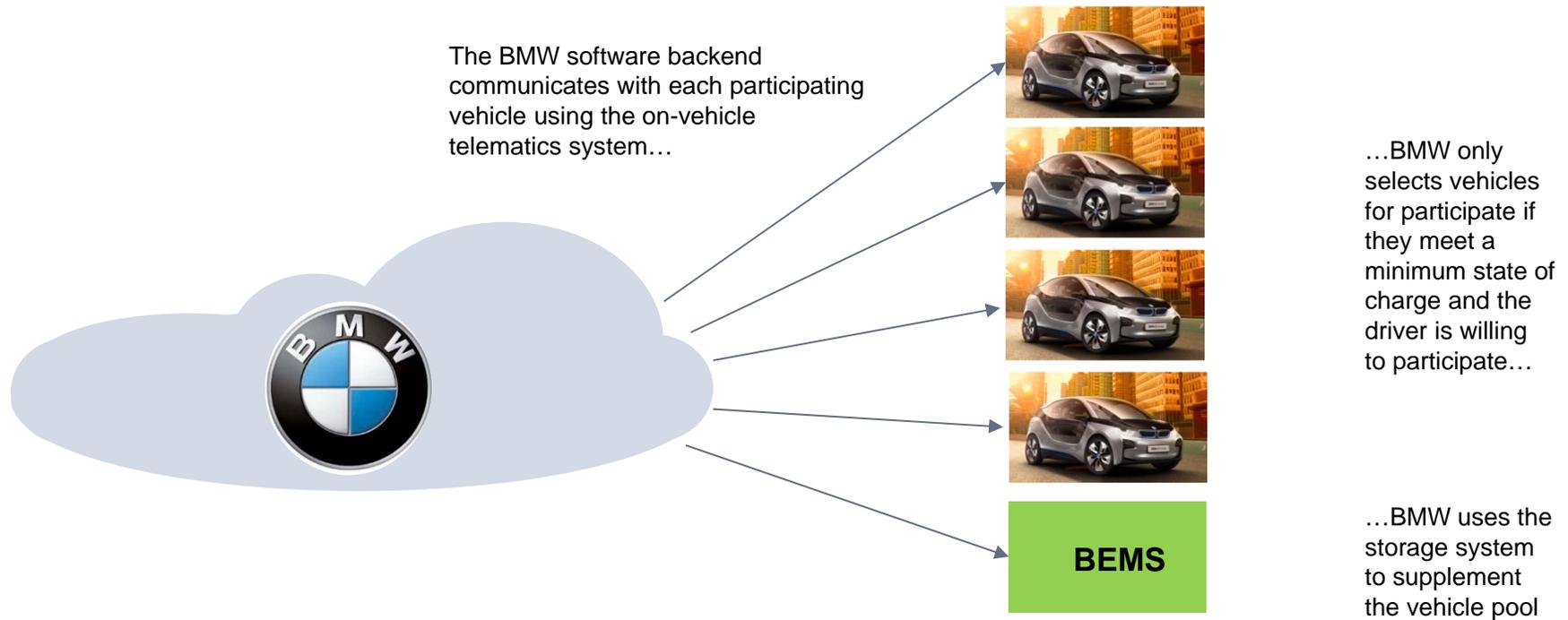
BMW SMART CHARGING VISION



- BMW NA was awarded a \$4M grant by the California Energy Commission (CEC) to study advanced vehicle charging functionality.
- BMW will engage up to 500 i3 drivers in a managed vehicle charging program
- BMW will use telematics to manage charging to build the foundation for Energy Services and Smart Solutions
- BMW will manage ALL charging events (at home or in public) to optimize both the local utility's energy cost and driver's mobility need

BACKGROUND: THE BMW i CHARGEFORWARD PROJECT

TECHNICAL APPROACH



BMW TCM GRANT OBJECTIVES

Evaluate the use of vehicle-based telematics charging data to measure vehicle grid performance away from home.

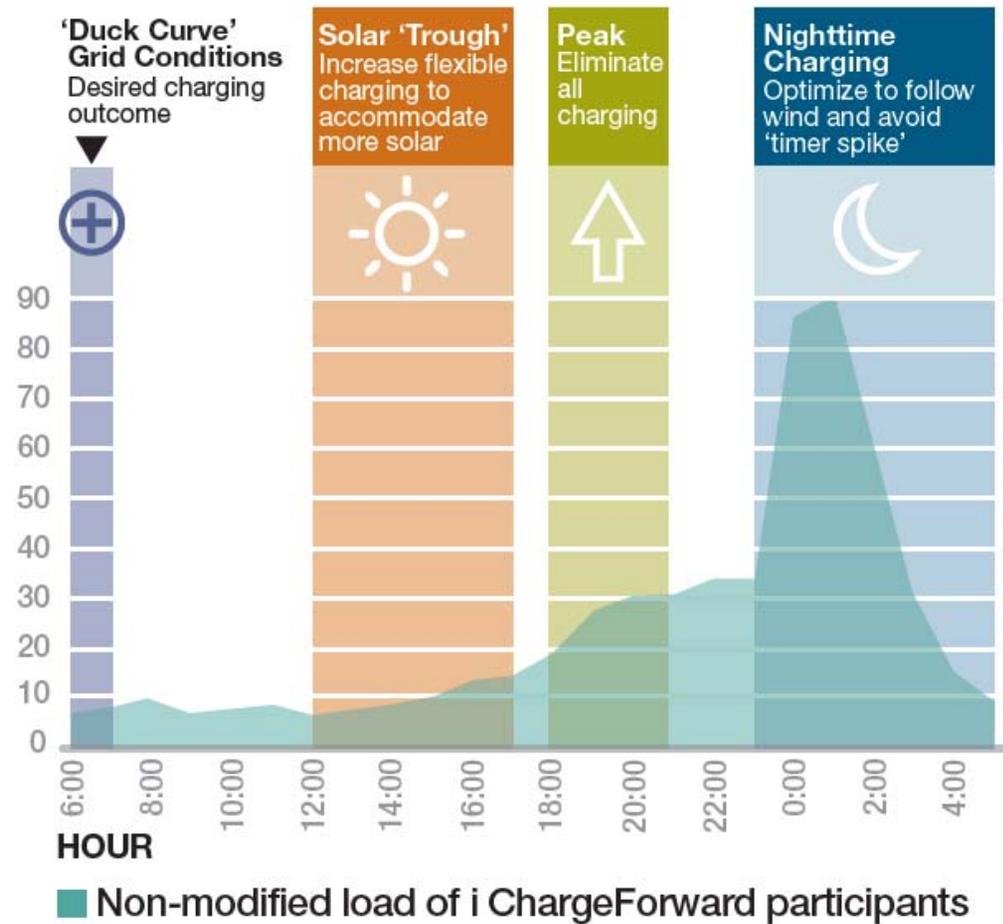
Understand the optimization opportunities within a driver's home electrical load relative to their residential tariff and power usage patterns.

Evaluate parking and charging events away from home to determine if the time and location of these events lend themselves to realizing grid benefits beyond what is achieved with nighttime charging.

Enable optimization of charging across wholesale (ISO) and retail (utility) programs, such as demand response and Distributed Resource Planning procurement opportunities.

Explore the driver engagement and incentives needed to fully optimize charging events

Evaluate the use of locational marginal prices (LMPs) and other transaction energy signals as a tool to improve grid efficiency.



ENROLLMENT LESSONS LEARNED

Enrollment forms are not customer friendly

- The forms rely on the use of a customer's unique "Service Agreement Identification Number," which is not known by most customers and difficult to find on the customers bill
- A customer may have as many as 4 SAID numbers (one for each service and each CCA), which results in incomplete forms which are returned to BMW
- Forms are several pages in length and cover topics irrelevant to most residential customers
- Often took several tries to get a correct form that PG
- Could review, which creates expense/hassle for third parties customers, and utilities

Enrollment process requires significant third-party investment in a customer prior to determining enrollment status

- The third party must get a completed form, with correct SAID, signed and approved by PG&E in order to determine the customers enrollment eligibility

The current Rule 24 is complex for customers and process for customers to unenroll from existing programs

- There is no procedure to allow the customer or a third party provider to determine who their third party provider is
- There is no procedure to compel a third-party to release their enrollment if a customer requests to do so

